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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,406	12/19/2001	Yong Dai	INL-053 (4643/95)	3767

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EXAMINER	
SAUCIER, SANDRA E	
ART UNIT	**PAPER NUMBER**
1651	

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/029,406	DAI ET AL.	
	Examiner	Art Unit	
	Sandra Saucier	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-26 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6/2,7/2,3/3,8/3.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-26 are pending and are considered on the merits.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 28 and 25 have been renumbered 25 and 26.

Claim Rejections - 35 USC § 112

INDEFINITE

Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are replete with parenthetical inclusions. It cannot be determined if these inclusions are meant to further limit or expand the preceding term. Please do not use terms in parenthesis as at best, these are repetitious and at worst, may be unfavorably interpreted.

It is highly unlikely that applicant intend calcium which is a white, fairly insoluble lump of metal to be a component of their kit and an element in their assay. It is more likely that calcium ion is used. However, the use of this terminology in the claim leaves it open to various interpretations. Please point to the place in the specification where support for calcium ion is present.

Claims 25 and 26 recite that the plasma contains 100% or 40-50% protein S. Percent of what? It is unlikely that the plasma is 100% protein S as it would be a solid protein mass at 100% wt/vol.

Claim 8 recites that the phospholipid is synthetic. It is unclear what is meant by this expression. Must the phospholipids be chemically synthesized from glycerol and fatty acids etc.? This is not a term of art which has a consistent interpretation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action: A person shall be entitled to a patent unless (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent, (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 14, 21-24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by US 5,147,805 [A5].

The claims are directed to a method for measuring protein S activity in a plasma sample comprising:

a) mixing the sample with PS-deficient plasma, TF, PL, calcium (ion) and APC, measuring the clotting time of the sample,

(b) comparing the measurement to a standard curve.

US 5,147,805 a method for measuring protein S activity in a plasma sample comprising:

a) mixing the sample with PS-deficient plasma, bovine TF, PL, calcium ion and activator of protein C which forms activated protein C in the mixture, measuring the clotting time of the sample,

(b) comparing the measurement to a standard curve (col. 3, l. 20).

Kits are also taught which contain protein S deficient plasma, an activator for protein C which is venom, bovine thromboplastin, calcium ions, phospholipids (col. 3, l. 50).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action: (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5, 7, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,147,805 [A5] as applied to claims 1-4, 14, 21-26 above, and further in view of US 5,726,028 [A30].

The claims are further directed to the use of a chromogenic substrate for PT measurement, use of human PS-deficient plasma, TF and activated protein C.

US 5,726,028 demonstrate that use of a chromogenic substrate and use of human protein C and PS-deficient plasma, and recombinant tissue factor are routine in the assay of PT which is the end point for determining protein S activity (claims 13, 14, 18, 25).

Claims 6, 8, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,147,805 [A5] as applied to claims 1-4, 14, 21-26 above, and further in view of US 5,858,724 [A35] or WO 93/07492 [B9].

The claim is further directed to the use of recombinant rabbit TF and synthetic phospholipids.

US 5,858,724 discloses rRTF and its use in clotting assays and the addition of a mixture of purified phospholipids in the claim specific ratio (col. 8, l. 48).

WO 93/07492 discloses that the use of recombinant human tissue factor and chemically defined phospholipids, the performance of the Pt reagent is improved.

The substitution of rRTF for the TF disclosed in the method of '805 would have been obvious when taken with '724 where the use of rRTF is demonstrated in the PT assay.

The substitution of human recombinant TF for the TF disclosed in the method of '805 would have been obvious when taken with WO 93/07492 which describes the advantages of such an substitution.

The substitution of the phospholipids in the assay of '805 with the phospholipids disclosed in '724 would have been obvious in the absence of evidence to the contrary.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,147,805 [A5].

The claims are directed to the activation of protein C by either thrombin or snake venom prior to the assay of claims 1 or 2.

The disclosure of '805 states that either snake venom or thrombin may be used as an activator of protein C. Whether one activates the protein C prior to or during the assay is an element of experimental design well within the purview of one of ordinary skill in the art in the absence of evidence to the contrary.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,147,805 [A5] as applied to claims 1-4, 14, 21-26 above, and further in view of Madden *et al.* [U]

The claim is further directed to the use of recombinant protein C in the assay.

Madden *et al.* disclose that recombinant protein C has comparable function to native protein C.

The substitution of recombinant protein C for native protein C is considered to be the substitution of equivalents in the absence of evidence to the contrary.

Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,147,805 [A5].

The claims are further directed to results of the assay where the variation meets certain limitations.

Insofar as these claims rely on functional features which imprecisely define by merely reciting the desired result to be achieved, instead of being characterized by technical features, the subject matter is considered to be obvious by the disclosures of the prior art.

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,147,805 [A5].

The claims are directed to the inclusion of plasma comprising 100% protein S and plasma comprising 40-50% protein S.

The claim is interpreted to mean that 40-50% or 100% of the normal concentration of protein S in plasma is in the plasma standard.

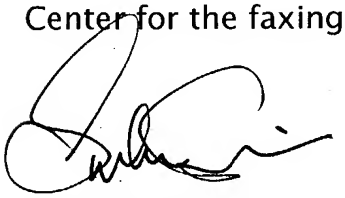
Although it is not specifically stated that these types of prepared standards are part of the kit of '805, the reference teaches preparing plasma 0-100% mixtures from protein S deficient plasma and normal plasma which would

have from 0-100% of the normal concentration of protein S. Thus, the inclusion of these mixtures in the kit would have been obvious and well within the purview of one skilled in the art.

One of ordinary skill in the art would have been motivated at the time of invention to make these substitutions in order to obtain the results as suggested by the references with a reasonable expectation of success. The claimed subject matter fails to patentably distinguish over the state of the art as represented by the cited references. Therefore, the claims are properly rejected under 35 U.S.C. § 103.

To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1651. The supervisor for 1651 is M. Wityshyn. The normal work schedule for Examiner Saucier is 8:30 AM to 5:00 PM Monday and Tuesday and 8:30 AM to noon on Wednesday.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra Saucier whose telephone number is (571) 272-0922. Status inquiries must be directed to the Customer Service Desk at (703) 308-0197 or (703)-308-0198. The number of the Fax Center for the faxing of official papers is (703) 872-9306.



Sandra Saucier
Primary Examiner
Art Unit 1651
February 23, 2004